

REMARKS

Claim Objections

The Examiner has objected to claims 11 and 14-16 due to informalities. Applicant has amended claims 11 and 14-16 to more particularly point and distinctly claim the subject matter which Applicant regards as the invention. As such, Applicant respectfully requests the removal of the claim objections of claims 11 and 14-16.

Claim Rejections - 35 U.S.C. § 103

The Examiner has rejected claims 11, 14-16, 18, 21, 23, 25, 44-45, 48-49 and 51 under 35 U.S.C. 103(a) as being unpatentable over Komino (US Patent 5,769,952) in view of Kimura et al. (US Patent 2001/0024691). The Examiner has rejected claims 20, 22 and 24 under 35 U.S.C. 103(a) as being unpatentable over Komino and Kimura as applied to claims 11, 14-16, 18, 21, 23, 25, 44-45, 48-49 and 51 above, and further in view of Matsuo et al. (JP 06-177093)

It is Applicant's understanding that Komino, either alone or in combination with Kimura, fails to teach or render obvious Applicant's invention claimed in claims 11, 14-16, 18, 21, 23, 25, 44-45, 48-49 and 51. In Claims 11, 14-16, 18, 21, 23, 25, 44-45, 48-49 and 51, Applicant teaches and claims an apparatus for atmospheric and sub-atmospheric processing of a wafer. Applicant's atmospheric and sub-atmospheric processing apparatus includes a atmospheric transfer chamber and a sub-atmospheric transfer chamber coupled together by a load lock. Applicant's invention includes a wet cleaning module coupled to the atmospheric transfer chamber. Applicant's apparatus also includes an integrated particle monitoring module coupled to the transfer chamber for monitoring particles on the wafer

surface. The integrated particle monitoring module comprises “*a laser source for shining a laser beam incident on a wafer surface and a plurality of detectors for detecting the reflection of said laser beam from said wafer surface to indicate the presence or defects of micro scratches on said wafer surface.*” Applicant’s claimed invention also includes a controller for controlling the wet cleaning module and the integrated particle monitoring module, wherein the controller includes “*stored instructions for determining the operation of said wet cleaning module depending upon result in said integrated particle monitoring tool.*” Thus, Applicants teach and claim a controller for controlling the operation of the wet cleaning module depending upon the results taken in the integrated monitoring tool.

Applicant does not understand either Komino or Kimura as teaching a controller which utilizes results from a particle monitoring tool to determine and control the operation of a wet cleaning module. Applicant understands Komino to describe a reduced pressure and nominal pressure treatment apparatus. Komino fails to describe an integrated particle monitoring tool coupled to the normal pressure unit. In fact, Komino fails to describe the use or need for any metrology or monitoring module whatsoever. Additionally and more important, Komino fails to describe a controller which controls an integrated monitoring tool and a wet cleaning module, wherein the controller provides instructions for determining the operation of the wet cleaning module depending upon results of the integrated particle monitoring tool. None of the numerous embodiments “1-6” set forth in Komino describe the use or desire for integrated particle monitoring module. Although Komino fails to describe or suggest the use or need of an integrated particle monitoring tool, or any metrology tool for that matter, is the Examiner’s position that would have been obvious to one of ordinary skill in the art to include such in the apparatus of Komino.

The Examiner cites Kimura as teaching a processing apparatus including a particle monitoring module and a controller for controlling a wet cleaning module in response to

results failed in the integrated monitoring module. Applicant strongly disagrees. Kimura describes a semiconductor substrate processing apparatus forming cooper interconnects on the integrated circuit. The semiconductor processing apparatus includes an atmospheric chamber having a plating module, a polishing module, a cleaning module and a measurement apparatus for measuring the initial and remainder thickness of the plated cooper film. Kimura, however fails to disclose an integrated particle monitoring module which includes a laser source for shining a laser beam onto a wafer surface and a plurality of detectors for detecting the reflection of said laser beam from said wafer surface to indicate the presence of defects, such as micro scratches or particles on the surface of a wafer, and a controller for controlling the operation of the wet cleaning module depending upon results of the scan in the integrated particle monitoring module.

As such, since neither Komino nor Kimura alone teach or describe a particle monitoring tool as claimed by Applicant nor a controller for controlling the operation of a wet cleaning module depending upon results taken in the integrated monitoring tool the combination cannot possibly teach Applicant's claimed invention. As such, for the above mentioned reasons it is Applicant's understanding that the combination and Komino in view of Kimura fails to teach or render obvious Applicant's invention as claimed in claims 11, 14-16, 18, 21, 23, 25, 44-45, 48-49 and 51. Applicant therefore respectfully requests removal of 35 U.S.C. 103 rejections of claims 11, 14-16, 18, 21, 23, 25, 44-45, 48-49 and 51 in view of Komino and Kimura as seeks nothing else from these claims.

Pursuant to 37 C.F.R. 1.136(a)(3), applicant(s) hereby request and authorize the U.S. Patent and Trademark Office to (1) treat any concurrent or future reply that requires a petition for extension of time as incorporating a petition for extension of time for the appropriate length of time and (2) charge all required fees, including extension of time fees and fees under 37 C.F.R. 1.16 and 1.17, to Deposit Account No. 02-2666.

Respectfully submitted,

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